

REMARKS/ARGUMENTS

Prior to the Office Action, claims 1-30 were pending. Within the Office Action, claims 1-30 are rejected. Accordingly claims 1-30 are currently pending in this application.

35 U.S.C. 103(a) Rejection - Gopinath in view of Japan

Within the Office Action, claims 1, 8, 10-16, 19, 20, 25 and 27-29 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,951,765 to Gopinath et al. (hereinafter "Gopinath") in view of Japanese Patent No. 7-24679 (hereinafter "Japan '679"). For the reasons outlined below, the Applicants respectfully traverse the rejections made within the Office Action and submit that the claims as presented above are in condition for allowance over Gopinath in view of Japan '679.

U.S. Patent No. 6,951,765 to Gopinath et al.

Gopinath describe a system for the introduction of solid precursors to a reactor for processing a semiconductor wafer with a supercritical fluid. [See Abstract.] The system includes an apparatus for generating supercritical solutions of solid precursors (100), and an apparatus (102) for delivering the supercritical solutions of dissolved solid precursors to a supercritical reactor or a reactor recirculation loop. Gopinath also describes, in Col. 8, lines 54-63, performing a deposition of solid precursors on wafers. This deposition process is referred to, at Col. 9, lines 4-9, as the "cleaning process". However, Gopinath does not describe a process which cleans or rinses the object with chemistry such as a cleaning chemistry (e.g., solvents, co-solvents and/or surfactants) or a rinsing chemistry (e.g., water and a solvent such as ethanol, acetone or IPA). Claims 1, 16 and 30 of the present invention require "processing of an object with a fluid wherein the process includes cleaning and rinsing the object". The cleaning and rinsing processes of Applicant's present invention are discussed in the application at page 8, lines 11-15, and are described as introducing chemistry such as a cleaning chemistry (e.g., solvents, co-solvents and/or surfactants) or a rinsing chemistry (e.g., water and a solvent such as ethanol,

acetone or IPA). Gopinath does not require the “process of cleaning and rinsing” as disclosed in the present invention, but rather, to the contrary, Gopinath discloses “cleaning” using a chemistry with solid precursors.

One basic criteria to establish a prima facie case of obviousness is that the prior art reference must teach or suggest all the claim limitations of the present invention. Since Gopinath uses a chemistry with solid precursors and not a cleaning and rinsing chemistry as required by the present invention, the reference does not teach such a limitation. Furthermore, as shown below, it would not have been obvious to one ordinarily skilled in the art to use such a cleaning and rinsing chemistry by considering Gopinath in view of Japanese Patent No. 7-24679.

Japanese Patent No. 7-24679

Japan ‘679 discloses a dispenser system using syringes which allows liquids to be dispensed with a high precision. (Abstract). Japan ‘679 does not disclose anything regarding cleaning and rinsing an object in a system for the supercritical processing of an object. Claims 1, 16 and 30 of the present invention require “processing of an object with a fluid wherein the process includes cleaning and rinsing the object”. The cleaning and rinsing processes of Applicant’s present invention are discussed in the application at page 8, lines 11-15, and are described as introducing chemistry such as a cleaning chemistry (e.g., solvents, co-solvents and/or surfactants) or a rinsing chemistry (e.g., water and a solvent such as ethanol, acetone or IPA). Japan ‘679 does not discuss a “process including cleaning and rinsing”, as required by the present invention, and as such the reference does not teach such a limitation. In fact, neither Gopinath, nor Japan teach such a limitation. Therefore, it would not have been obvious to one ordinarily skilled in the art to use such a cleaning and rinsing chemistry by considering Gopinath in view of Japanese Patent No. 7-24679.

35 U.S.C. 103(a) Rejection - Gopinath in view of DeYoung

Also, within the Office Action, claims 2-5, 17 and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Gopinath in view of U.S. Patent No. 6,782,900 to DeYoung et al. (hereinafter "DeYoung"). For the reasons outlined below, the Applicants respectfully traverse the rejections made within the Office Action and submit that the claims as presented above are in condition for allowance over Gopinath in view of DeYoung.

As shown above, Gopinath uses a chemistry with solid precursors and not a cleaning and rinsing chemistry, and therefore the reference does not teach limitations as required by the present invention. Furthermore, as shown below, it would not have been obvious to one ordinarily skilled in the art to use such a cleaning and rinsing chemistry by considering Gopinath in view of U.S. Patent No. 6,782,900 to DeYoung et al.

U.S. Patent No. 6,782,900 to DeYoung et al.

DeYoung describes a method and apparatus for cleaning and treating a substrate using CO₂. However, DeYoung does not describe a process which cleans or rinses the object with chemistry such as a cleaning chemistry (e.g., solvents, co-solvents and/or surfactants) or a rinsing chemistry (e.g., water and a solvent such as ethanol, acetone or IPA). Claims 1, 16 and 30 of the present invention require "processing of an object with a fluid wherein the process includes cleaning and rinsing the object". The cleaning and rinsing processes of Applicant's present invention are discussed in the application at page 8, lines 11-15, and are described as introducing chemistry such as a cleaning chemistry (e.g., solvents, co-solvents and/or surfactants) or a rinsing chemistry (e.g., water and a solvent such as ethanol, acetone or IPA). DeYoung does not require the "process of cleaning and rinsing" as disclosed in the present invention, but rather requires using CO₂ for cleaning a substrate.

One basic criteria to establish a prima facie case of obviousness is that the prior art reference must teach or suggest all the claim limitations of the present invention. Since DeYoung uses a chemistry with CO₂ and not the cleaning and rinsing chemistry as required by the present invention, the reference does not teach such a limitation.

Furthermore, since neither Gopinath nor DeYoung teach such a limitation, it would not have been obvious to one ordinarily skilled in the art to use such a cleaning and rinsing chemistry by considering Gopinath in view of DeYoung.

35 U.S.C. 103(a) Rejection - Gopinath in view of Fan

Also, within the Office Action, claims 6, 7, 21, 22, 24 and 26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Gopinath in view of U.S. Patent No. 5,620,524 to Fan et al. (hereinafter "Fan"). For the reasons outlined below, the Applicants respectfully traverse the rejections made within the Office Action and submit that the claims as presented above are in condition for allowance over Gopinath in view of Fan.

As shown above, Gopinath uses a chemistry with solid precursors and not a cleaning and rinsing chemistry, and therefore the reference does not teach limitations as required by the present invention. Furthermore, as shown below, it would not have been obvious to one ordinarily skilled in the art to use such a cleaning and rinsing chemistry by considering Gopinath in view of Fan.

U.S. Patent No. 5,620,524 to Fan et al.

Fan describes a dual plunger system for continuous and pulse-free delivery of reagents for semiconductor processing. Fan does not describe a process which cleans or rinses the object with chemistry such as a cleaning chemistry (e.g., solvents, co-solvents and/or surfactants) or a rinsing chemistry (e.g., water and a solvent such as ethanol, acetone or IPA). Claims 1, 16 and 30 of the present invention require "processing of an object with a fluid wherein the process includes cleaning and rinsing the object". The cleaning and rinsing processes of Applicant's present invention are discussed in the application at page 8, lines 11-15, and are described as introducing chemistry such as a cleaning chemistry (e.g., solvents, co-solvents and/or surfactants) or a rinsing chemistry (e.g., water and a solvent such as ethanol, acetone or IPA). Fan does not require the "process of cleaning and rinsing" as disclosed in the present invention, but rather only describes a delivery system for reagents.

One basic criteria to establish a prima facie case of obviousness is that the prior art reference must teach or suggest all the claim limitations of the present invention. Since Fan does not describe a cleaning and rinsing chemistry as required by the present invention, the reference does not teach such a limitation.

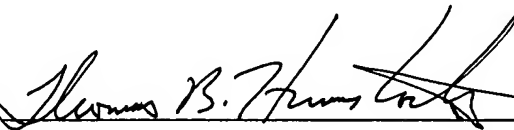
Furthermore, since neither Gopinath nor Fan teach such a limitation, it would not have been obvious to one ordinarily skilled in the art to use such a cleaning and rinsing chemistry by considering Gopinath in view of Fan.

CONCLUSION

As shown by the preceding arguments, neither Gopinath, Japan '679, DeYoung nor Fan disclose the limitations now present in claims 1, 16, and 30 of Applicant's invention. No new matter has been introduced by the amendments. Also, claims 2-15 and 17-29 which contain the limitation by reference. Furthermore, as shown above, the novel features of the invention would not have been obvious to one normally skilled in the art at the time of the invention. Therefore, the Applicant believes all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. If the Examiner believes that a telephone conference would expedite prosecution of this application, the Examiner is encouraged to contact the undersigned at (408) 530-9700.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: 1-8-07

By 
Thomas B. Haverstock
Reg. No.: 32,571
Attorneys for Applicant

CERTIFICATE OF MAILING (37 CFR § 1.8(a))
I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450

HAVERSTOCK & OWENS LLP

Date: 1-8-07